

REMARKS

This application has been carefully reviewed in light of the Office Action dated September 11, 2001. Claims 1 to 78 are in the application, of which Claims 1, 20, 26, 31, 43 and 54 are independent. Reconsideration and further examination are respectfully requested.

Applicants note the continued adherence to the requirement for restriction, and that the restriction requirement has been made final. Applicants continue to traverse the requirement, however, and maintain the position that there would not be undue burden in examining all three groups of claims in a single application. In particular, it is noted that all claims feature a fibrous material subjected to a specifically-recited treatment, such that examination of all claims together would entail only normal burdens of examination and prosecution.

Moreover, it is noted that the application contains claims to a product as well as a process of making the product and a process of using the product. In this case, the product claims have been elected, and it is respectfully submitted that the claims to the product link both the process of making and the process of using. See MPEP § 809.03. At the very least,

Applicants are entitled to examination of both the product and process of making, at least until the product claims are found allowable at which time the process of using must be joined. See MPEP § 806.05(i).

In view of the foregoing, rejoinder of all claims is once again respectfully requested. In keeping with this request, no claim has been cancelled.

Claims 18, 19 and 42 were rejected under 35 U.S.C. § 112, second paragraph, for alleged indefiniteness. With respect to the rejection of Claims 18 and 42, the dependency relationship of those claims has been maintained in view of Applicants' continued traversal of the restriction requirement, as described above. Claim 19 has not been changed, since Applicants believe that clear antecedence for the recited "fibrous materials" is found in Claim 18, which claims a "fibrous material".

In view of the foregoing, withdrawal of the § 112 rejection is respectfully requested.

Applicants thank the Examiner for his concern over the proper usage of trademarks. It is believed that trademark usage in the specification is fully respectful of the trademark rights of third parties, in that the trademarks are always identified as such and are always capitalized. Should the

Examiner believe that trademark usage in the specification is not sufficient respectful of the trademark rights of third parties, he is invited to contact the undersigned who will authorize any needed changes.

Claims 8 and 19 were rejected under 35 U.S.C. § 102(e) over U.S. Patent 5,748,088 (Ujita '088), and Claims 20 to 30 and 42 to 53 were rejected under § 103(a) over Ujita '088 in view of U.S. Patent 5,509,140 (Koitabashi '140). The claims herein have been amended to improve clarity through re-wording, but the amendments above are not seen to affect scope nor was any change in scope intended. Accordingly, this should be viewed as a traversal of the § 102(e) and § 103(a) rejections.

The invention concerns fibrous materials and particularly such fibrous materials as are useful for an ink-absorbing body in an ink-jet printing environment. Focusing on fibrous materials composed of resins, the inventors found that such resin fibrous materials contain various additives and oil that have been added in the production process, and that these additives and oils are released into the ink-jet ink. The release of such additives and oils often causes ejection failure of the ink.

Based on these findings, the inventors applied themselves to a solution of such problems, and found that ink ejection failure can be alleviated by treating the fibrous materials with an ethylene oxide adduct of a glycol. The inventors found that such a treatment removes, or otherwise dissolves and emulsifies, the additives and oils that cause ink ejection failure.

Thus, as set out in Claim 18, the fibrous material is produced in accordance with the steps of providing a spun yarn by melt spinning a thermoplastic resin, and subjecting the spun yarn to a glycol treatment in which the spun yarn is contacted with an ethylene oxide adduct of a glycol. On the contrary, Ujita '088 pertains to an enhancement of wetting properties of the surface of fibers that form a bundle of fibers for absorbing ink. Ujita, however, never mentions a glycol treatment in which spun yarn is contacted with an ethylene oxide adduct of a glycol, as set out in the rejected claims. It is therefore believed that Claims 18 and 19 are not anticipated by Ujita '088.

In entering the rejection over Ujita '088, the Office Action cited Ujita's column 10, lines 29 through 66. The cited portion of Ujita merely describes the structure of Ujita's ink-inducing element, and nowhere mentions subjecting a spun yarn to

a glycol treatment. The best that might be said of Ujita '088 is found at the paragraph bridging columns 10 and 11. There, in discussing the wetting property, Ujita mentions that a "hydrophilic processing" can be applied to materials having a large ink-contact angle. Such a disclosure falls far short of the requirements for a rejection under § 102.

With respect to the rejection under § 103(a), Koitabashi '140 describes that surfactants such as an ethylene oxide adduct of a glycol may be added into ink, which is said to lower the contact angle of the ink with respect to an ink absorbing material. However, Koitabashi's surfactant is added to the ink whereas the invention concerns a glycol treatment on spun yarn. It is therefore respectfully submitted that the differences between the invention and the applied Ujita '088 and Koitabashi '140 patents are such that the invention as a whole would not have been obvious. Withdrawal of the § 103(a) rejection is therefore respectfully requested.

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. § 1.56, Applicants respectfully direct the Examiner's attention to European 771,662, a copy of

which is enclosed and which is listed on the attached Form PTO-1449.

European 771,662 is a published counterpart of U.S. Application No. 08/742,049, which was cited in the Information Disclosure Statement dated April 1, 1999.

This application has received an Office Action on the merits but has not yet received either a final action or a notice of allowance. Accordingly, this Information Disclosure Statement is filed under 37 C.F.R. § 1.97(c) and is accompanied by the \$180.00 fee specified at 37 C.F.R. § 1.17(p). Consideration of the art cited herein is accordingly deemed proper, and such action is respectfully requested.

The Examiner is urged to study this information in its entirety and to form an independent determination of the materiality of the information to the claimed invention. Additionally, the Examiner is requested to indicate that this information has been considered by initialling the appropriate portion of Form PTO-1449.

CONCLUSION

Applicants' undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,


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U.S. Application No. 09/132,746
Atty. Docket No.: 35.C12902

VERSION WITH MARKINGS TO SHOW CHANGES TO CLAIMS

1. (Amended) A process for producing a fibrous material comprising: [for a member with which an ink-jet ink comes into contact, including the step of]

providing a spun yarn by melt spinning a thermoplastic resin; and [, the process comprising the step of:]

subjecting [a] the spun yarn to a glycol treatment in which the spun yarn is contacted with an ethylene oxide adduct of a glycol [added with ethylene oxide].

2. (Amended) The process according to Claim 1, wherein the glycol treatment is at least one treatment selected from among

(1) a treatment for applying the glycol to the yarn;

(2) a treatment for replacing a releasable component [to be possibly released] releasable into an ink in the yarn by the glycol to reduce an amount of the releasable component; and

(3) a treatment for dissolving or emulsifying the releasable component in the yarn in the glycol.

6. (Amended) The process according to [any one of Claims 2 to] Claim 4, wherein the releasable component [to be possibly released into an ink] in the yarn is at least one of additives contained in the thermoplastic resin which constitutes the yarn and components derived from the spinning oil and finishing oil attached to the yarn.

7. (Twice Amended) The process according to Claim 6, wherein an amount released upon contact with an ink-jet ink of components derived from the oils, which [are to be possibly released] releasable into the ink-jet ink, is at most 100 ppm based on the weight of the ink.

8. (Amended) The process according to Claim 7, wherein the releasable components [to be possibly released] are components detected by using at least one of silicon, phosphorus and potassium as an index.

11. (Twice Amended) The process according to Claim 10, wherein the glycol is an acetylene glycol having a triple

bond, [in which it has] and having at least one side chain at a central site of a linear main chain, [and] with ethylene oxide [is] added to the side chain.

12. (Amended) The process according to Claim 11, wherein the glycol exhibits a nonionic surface activity and has a [cloud] dew point of at least 65°C.

18. (Twice Amended) A fibrous material produced in accordance with the production process according to Claim [17] 1.

19. (Amended) An ink-absorbing member which can deliverably hold an ink-jet ink therein, [wherein the ink-absorbing member is composed principally of] comprising the fibrous materials according to Claim 18.

20. (Amended) A fibrous material composed of a thermoplastic resin, to which [a glycol added with] an ethylene oxide adduct of a glycol is applied.

23. (Twice Amended) The fibrous material according to Claim 22, wherein the glycol is acetylene glycol having a triple bond, [in which it has] and having at least one side chain at a central site of a linear main chain, [and] with ethylene oxide [is] added to the side chain.

24. (Amended) The fibrous material according to Claim 23, wherein the glycol exhibits an anionionic surface activity and has a [cloud] dew point of at least 65°C.

26. (Amended) A fibrous material composed of a thermoplastic resin, comprising releasable components derived from treatment oils attached to the fibrous material, wherein an amount of the releasable components released upon contact with an ink-jet ink [of releasable components derived from treatment oils, which are to be possibly released into the ink-jet ink,] is at most 100 ppm based on the weight of the ink.

27. (Amended) The fibrous material according to Claim 26, wherein the releasable components [to be possibly released]

are components detected by using at least one of silicon, phosphorus and potassium as an index.

30. (Twice Amended) An ink-absorbing member which can deliverably hold an ink-jet ink therein, [wherein the ink-absorbing member is composed principally of] comprising the fibrous materials according to Claim [29] 20.

31. (Amended) A process for treating an ink-absorbing member which can deliverably hold an ink-jet ink therein, the process comprising the steps of:

treating a molding comprising a fibrous material composed of a thermoplastic resin with a treating agent containing an ethylene oxide adduct of a glycol [added with ethylene oxide].

32. (Amended) The process according to Claim 31, wherein the glycol is an acetylene glycol having a triple bond, [in which it has] and having at least one side chain at a central

site of a linear main chain, [and] with ethylene oxide [is] added to the side chain.

35. (Amended) The process according to [any one of Claims 31 to] Claim 34, wherein the treating agent containing the glycol is composed of the glycol alone.

40. (Twice Amended) The process according to Claim 39, further comprising a releasable component derived from treatment oils added to the fibrous material, wherein an amount of the releasable component released upon contact with an ink jet ink [of components derived from treatment oils attached to the fibrous material, which are to be possibly released into the ink-jet ink,] is [reduced to] at most 100 ppm based on the weight of the ink.

41. (Amended) The process according to Claim 40, wherein the releasable components [to be possibly released] are detected by using at least one of silicon, phosphorus and potassium as an index.

42. (Twice Amended) An ink-absorbing member treated in accordance with the treatment process according to [Claim] any one of Claims 31 to 41.

43. (Amended) An ink-absorbing member [which comprises] comprising a fibrous material composed of a thermoplastic resin and [can] constructed to deliverably hold an ink-jet ink therein, and a releasable component derived from treatment oils attached to the fibrous material, wherein an amount of the releasable component released upon contact with an ink-jet ink [of releasable components derived from treatment oils attached to the fibrous material, which are to be possibly released into an ink-jet ink,] is at most 100 ppm based on the weight of the ink.

44. (Amended) The ink-absorbing member according to Claim 43, wherein the releasable components [to be possibly released] are detected by using at least one of silicon, phosphorus and potassium as an index.

45. (Amended) The ink-absorbing member according to [Claim 43 or] Claim 44, wherein the thermoplastic resin is at least one selected from the group consisting of polyethylene, polypropylene, ethylene-propylene copolymers, polymethylpentene and ethylene-olefin copolymers.

47. (Twice Amended) An ink tank container for an ink-jet head comprising an ink chamber having an opening part communicating with [the] air and an ink feed opening [connected] connecting to the ink-jet head, wherein the ink-absorbing member according to [Claim] any one of Claims 19, 30 or 43 to 46 is fitted within a region including the ink feed opening in the ink chamber.

49. (Twice Amended) An ink tank container for an ink-jet head comprising an ink chamber having an opening part communicating with [the] air, and a connecting chamber [for head, which communicates] connectable to the ink-jet head, the connecting chamber communicating with the ink chamber and [is adapted] being constructed to feed an ink from the ink chamber to

[an] the ink-jet head through a connecting opening to the ink-jet head, wherein the ink-absorbing member according to [Claim] any one of Claims 19, 30 or 43 to 46 is fitted within the connecting chamber [for head] for providing a negative pressure.

50. (Amended) The ink tank container according to Claim 49, wherein the ink-absorbing member is provided in contact with the [ink feed] connecting opening.

51. (Twice Amended) An ink tank in which an ink-jet ink is charged into the ink chamber of the ink tank container according to Claim [50] 49.

54. (Amended) A treating process for regenerating ink absorbing properties of an ink-absorbing member [for ink-jet] composed principally of a fibrous material, the process comprising the step of:

treating the ink-absorbing member with a residual ink held therein with a treating agent containing an ethylene oxide adduct of a glycol [added with ethylene oxide].

55. (Amended) The process according to Claim 54, wherein the glycol is an acetylene glycol having a triple bond, [in which it has] and having at least one side chain at a central site of a linear main chain, [and] with ethylene oxide [is] added to the side chain.

56. (Amended) The process according to Claim 55, wherein the glycol exhibits nonionic surface activity and has a [cloud] dew point of at least 65°C.

63. (Twice Amended) The process according to Claim 62, further comprising a releasable component derived from treatment oils attached to the fibrous materials, wherein an amount of the releasable component released upon contact with an ink-jet ink [of components derived from treatment oils attached to the fibrous material, which are to be possibly released into the ink-jet ink,] is reduced to at most 100 ppm based on the weight of the ink.

64. (Amended) The process according to Claim 63,
wherein the releasable components [to be possibly released] are
detected by using at least one of silicon, phosphorus and
potassium as an index.

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